Rice University
ELEC 220 - Fundamentals of Computer Engineering
Course Information, Spring 2011

Instructors
Joseph Cavallaro, cavallar@rice.edu, DH 3042, x4719
Office hours: T,Th 2:30 - 4:00 pm
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Course Schedule
Class: T/Th 1:00-2:20PM, HZ 210. Lab: TBD, AL A116

Course Description
This course provides an overview of fundamental topics in computer engineering, including bits, CMOS logic, computer arithmetic, state machines, instruction-sets, assembly language, linkage conventions, storage hierarchies, interrupts, I/O, and systems issues. Generally, the first five weeks focus on digital logic and simulation, the second five weeks on assembly language and computer architecture, and the third five weeks on high level languages, system design issues, and application-specific systems.

Prerequisites: None

Course Websites
http://www.owlnet.rice.edu/~elec220
http://owlspace.rice.edu/
We will be using Owlspace for assignments and lab scheduling and announcements.

Course Textbook
Introduction to Computing Systems **2nd Edition** by Patt and Patel, McGraw-Hill Publishers; 2004; ISBN-10 is 0-07-246750-9. The ISBN-13 is 978-0-07-246750-5 at Campus Store. Please be sure to get 2nd Edition from 2004 with the blue cover.

Lab Sessions
Each student is required to register for and attend a weekly lab session in Abercrombie Labs, A116. Afternoon from 2:30 to 4:30 pm and evening labs from 7:00 to 9:00 pm are planned. Please check Owlspace to see available times and to select a lab session. Each session is for about 20 students. Lab will begin the week of January 24, 2011. The hardware labs are based around the Texas Instruments MSP430 processor.

Project topics: A calculating circuit based on logic gates, and Writing a simulator for a really little computer.
Lab topics: Digital Logic, Simple Assembly Programming, I/0, Traps, and Interrupts, and Real-time Sensing (Digital Voltmeter).

Course Format
This class will consist of a lecture component and a lab component. The lab session will cover computer system design and simulation tools that provide students with hands-on experience of the concepts discussed in class. The lab sessions will also provide students with additional guidance for completing the course homework and projects.

Grading:
Homework: 8 assignments, 3% each = 24%
Labs: 5 assignments, 3% each = 15%
Lab Quizzes: Several during the semester total = 3%
Projects: First - calculator 10%, Second - computer simulator, 15%; total = 25%
Exams: Three, non-cumulative, 11% each = 33%

Slip Days:
In order to help with the workload, each student will have two ``slip sessions'' for the homework for the semester. Typically, homework is due on Tuesday. The ``slip session'' would allow turning in the homework on Thursday of the same week. There will be a single additional separate group ``slip day'' for the projects. Typically, the projects are due on Friday night. The ``slip day'' would allow until the following Tuesday night to submit the project.

Class participation:
Students are expected to attend both lecture and lab and are encouraged to ask questions during course meetings throughout the semester.

Honor code policy:
General Assignments: When working in groups for labs and projects, your group counts as a single individual for this policy, and your group receives a single score. You may use your text, course notes, and any other reference material (that is not a solution). You may discuss problems, general strategies, or algorithms with other people (in the course or not). When partnering, you should understand and be able to recreate any part of the solutions on your own. For all assignments, you may NOT use solutions from past classes or found on the web. You may not obtain code from anyone (in the course or not), aside from code provided as part of the course.

Homework Honor Code: Please remember the grading and honor code policies. Complete homework assignments individually. Please list your name on the submitted solution. Solutions submitted after the date and time specified will receive no credit. (Please refer to the slip day policy.) You may freely use course notes, the course textbook, or course handouts for the assignments; students may work together on the homework assignments, discussing and comparing ideas and answers, but each student must write up solutions individually without resort to copying. You should also not refer to solutions posted on the web or from previous years' classes. Clearly state any assumptions that you make in order to solve the problems, and show all your work.

Students with Disabilities:
Any student with a disability requiring accommodations in this course is encouraged to contact the instructor after class or during office hours. Additionally, students will need to contact Disability Support Services in the Ley Student Center.

Other Policies and Notes:

Graded Work

All assignments will be posted in the Assignments section on Owlspace. The Owlspace Schedule page will also list all due dates. The Owlspace Gradebook will be updated as assignments are graded. However, the mapping of raw scores to final letter grades is based on a curve determined at the end of the semester and so is not based strictly on 70, 80, 90 cutoffs for letter grades. Class attendance and participation may used to help determine the curve around any border cases.

Lab Assignments

For lab assignments, your circuit or program result must be demonstrated to a lab assistant during lab. You are encouraged to demonstrate the operation of each problem as you complete it, rather than waiting until all are done. For each part of the assignment, bring your lab assignment record (your written answers), and have the lab assistant grade and initial that problem. Keep the assignment record until all parts are done and then turn it in to your lab attendants for recording. Demonstrations will generally be conducted during the 2nd hour of lab, as during the 1st hour, preference is given to students needing assistance.

Groups

People may work in self-selected groups of two for the projects and laboratory assignments only. Group members should be in the same lab section, and so it is important to pick your laboratory section together when forming your group. A group acts like a single person -- turning in a single assignment and receiving a single score. Each group member should understand and be able to recreate each part of the assignment. Each group member should be present when demonstrating lab assignments.

Laboratory Quizzes

A few quizzes will be given during lab and each quiz will be worth an equal amount. The total of all quizzes during the semester will add up to 3% or the equivalent of one homework assignment. You must be present in lab during the quiz to get a score on that quiz. Quiz questions will be given during the lab lecture and a small time for discussing with your neighbors will be given. Then you will mark your answer. Students will be called on to explain the answers chosen and finally the correct answer will be given. You will score your quiz and turn in the paper to the lab attendants for recording. The quiz rules are subject to change.

Regrades

If you feel that something was graded incorrectly, first state your case to the original grader. If you still have a complaint, see an instructor.